

REMARKS

Claims 1-9 and 13-21 are pending in the present Application.

I. The obviousness rejection of claims 1, 8, and 13-17 based on Paranipe (US 2003/0003635), as noted on page 2 of the Office Action.

The USPTO respectfully rejects claims 1, 8, and 13-17 under 35 U.S.C. 103(a) as being unpatentable over Paranipe. Claims 1 is an independent claims.

A. Paranipe does not teach or suggest a partial insulating film having the specifically claimed critical thickness of 0.3 to 2 nm, as claimed in claim 1.

Claim 1 claims in relevant part:

“forming a partial insulating film, wherein the partial insulating film has a **thickness in the range of 0.3 to 2 nm;**” (emphasis added)

Regarding these limitations, it is respectfully not seen where Paranipe teaches the claimed method quoted above.

For example, the USPTO respectfully argues on page 3 of the Office Action that the claimed range is obvious because Paranipe teaches 25 cycles at 0.8 angstroms per cycle (i.e., 2 nm).

Applicants are respectfully aware of the USPTO rules regarding the obviousness of range. However, even assuming *arguendo*, that Paranipe teaches a range that overlaps with the specifically claimed range of claim 1, Applicants respectfully assert that **the specifically claimed thickness range of claim 1 is “critical” and therefore rebuts the purported prima facie case of obviousness based on Paranipe (see MPEP 2144.05.III – “REBUTTAL OF PRIMA FACIE CASE OF OBVIOUSNESS”).**

For example, as noted in present Figure 3, the amount of impurities removed above is relatively constant above a thickness of 2 nm. In contrast, below 2 nm thickness, the amount of impurities removed is proportional to the film thickness. In other words, **the removal of impurities is most efficient at the specifically claimed range of claim 1, i.e., 0.3 to 2.0 nm.** At thicknesses above this range (i.e., at the thickness range taught by Paranipe), impurity removal is less efficient.

Thus, Applicants respectfully assert that the specifically claimed range of 0.3 to 2.0 nm is “critical” compared to the range purportedly taught in Paranjpe (see MPEP 2144.05.III). For example, because **the specifically claimed range of claim 1 shows superior impurity removal over the range taught in Paranjpe**, claim 1 is respectfully not obvious over Paranjpe (see also MPEP 716.02(a) – SUPERIORITY OF A PROPERTY SHARED WITH THE PRIOR ART IS EVIDENCE OF NONOBVIOUSNESS).

Thus, overall, even if the range taught in Paranjpe overlaps at a single point with the range of claim 1, any prima facie showing of obviousness is overcome by the criticality of the specifically claimed range of claim 1 and the superior properties resulting therefrom. Therefore, it is respectfully asserted that claim 1 is allowable over Paranjpe.

B. The dependent claims.

As noted above, it is respectfully asserted that independent claim 1 is allowable, therefore, it is further respectfully asserted that dependent claims 8 and 13-17 are also allowable.

III. The obviousness rejections of claims 2-7, 9, and 18-21 based on Paranjpe in view of Colombo (US 2005/0136690), as noted on page 4.

The USPTO respectfully rejects claims 2-7, 9, and 18-21 under 35 U.S.C. 103(a) as being unpatentable over Paranjpe and Colombo.

Applicants respectfully note that independent claims 9 and 21 claim “wherein the partial insulating film has a thickness in the range of 0.3 to 2 nm,” similar to independent claim 1.

As noted above in Section I, Paranjpe does not teach or suggest the specifically claimed range of 0.3 to 2.0 nm of claim 1. Additionally, Colombo respectfully does not overcome this deficiency in the primary reference Paranjpe because Colombo does not teach or suggest a film thickness in the specifically claimed range of 0.3 to 2.0 nm.

Thus, it is respectfully asserted that the cited references, taken either alone or in combination, do not teach or suggest all of the limitations of independent claims 9 and 21.

Additionally, as noted above, it is respectfully asserted that independent claims 1 and 9 are allowable, and therefore it is further respectfully asserted that dependent claims 2-7 and 18-20 are also allowable.

III. Conclusion

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable. Accordingly, reconsideration and allowance of all of the claims is respectfully requested.

Please contact the undersigned for any reason. Applicants seek to cooperate with the Examiner, including via telephone if convenient for the Examiner.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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